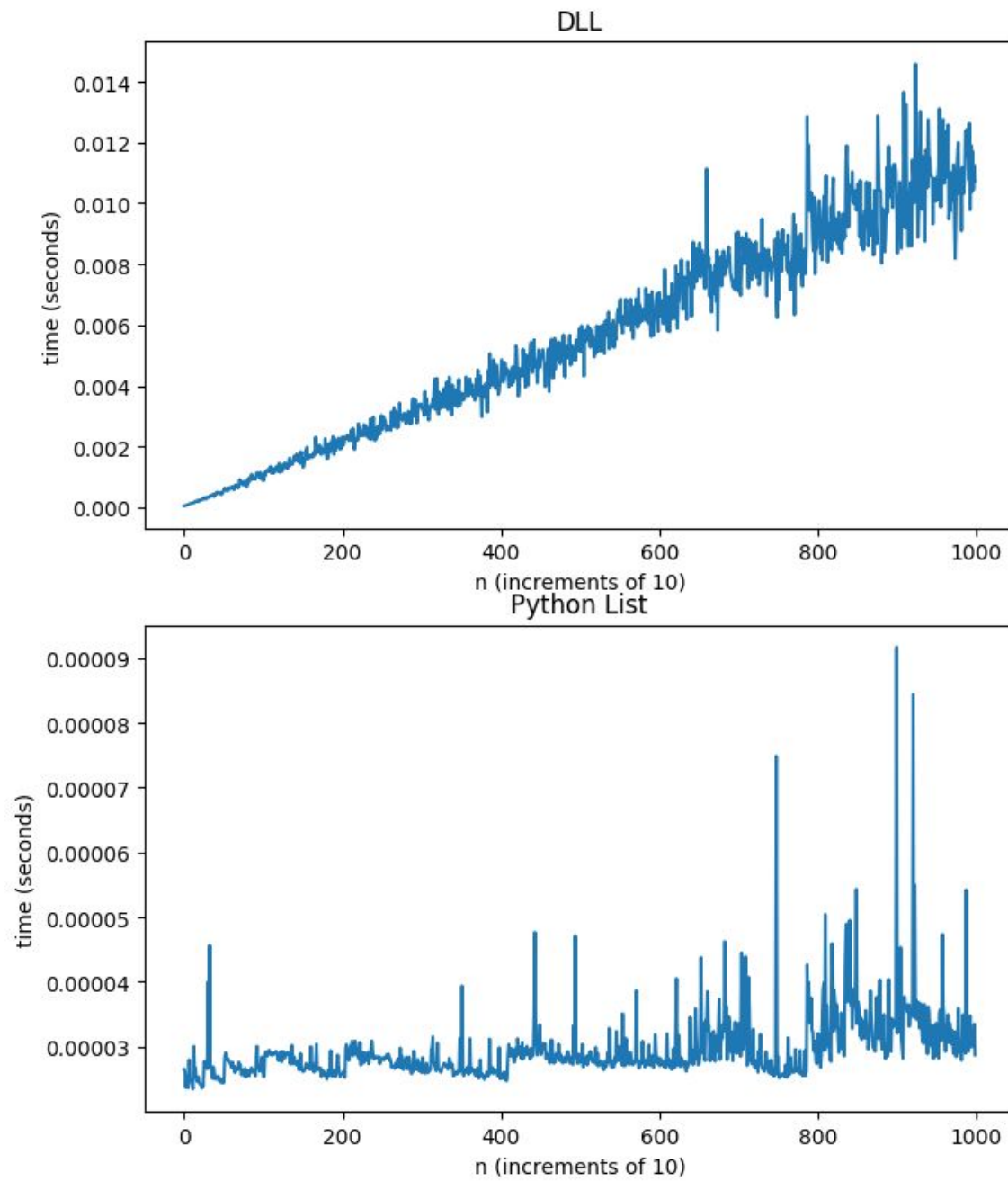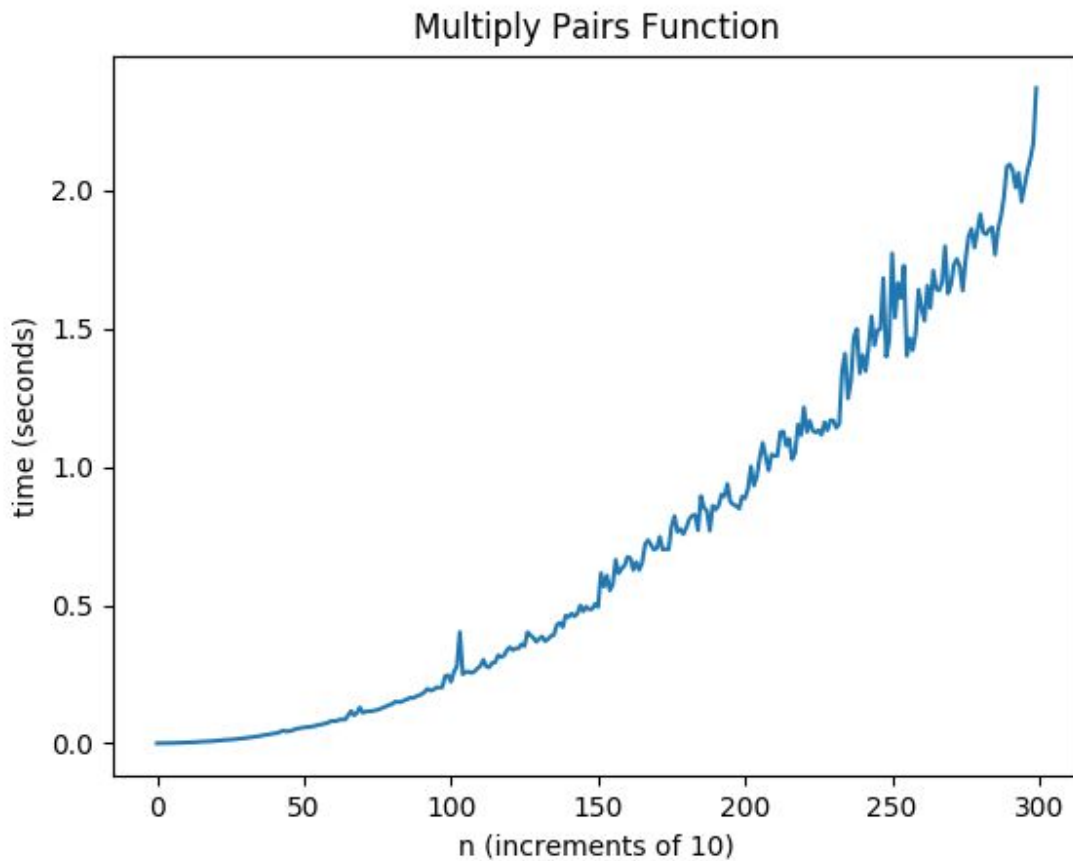David Tarazi
Homework 2

2a.

DLL vs Lists index runtime

As shown in the figure above, the runtime for Python lists is relatively constant with a few peaks that are still small relative to each other with the max peak only 3 times larger than the typical runtime. However, the runtime to index a DLL is O(n) but the variance grows as the size gets larger due to there being more chances for worst case scenarios.

2b.

I had to cut the number of iterations down to 3000 for this because the runtime was so long. The runtime looks to be $O(n^2)$. I added a print for n every 100 iterations to see how the runtime was changing over time and monitor how close I was to finishing and it took much longer towards the end. Runtime matters.